

AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings of claims in the application:

LISTING OF THE CLAIMS

1. (Currently Amended) A lighting apparatus for emitting white light comprising:
a semiconductor light source emitting radiation having a peak emission in the UV;
and
a phosphor composition radiationally coupled to the light source, the phosphor composition comprising (Ba,Sr,Ca)SiO₄:Eu, one or more garnet phosphors having the general formula (Y,Gd,La,Lu,Tb,Pr,Sm)₃(Al,Ga,In)₅O₁₂:Ce, and at least one phosphor selected from the group consisting of (Sr,Mg,Ca,Ba,Zn)₂P₂O₇:Eu,Mn; (Ca,Sr,Ba,Mg)₅(PO₄)₃(Cl,F,OH):Eu,Mn; and (Sr,Mg,Ca)₂MgAl₁₀O₁₇:Eu,Mn, wherein said (Ba,Sr,Ca)SiO₄:Eu phosphor comprises (Sr_{0.95}Ba_{0.025}Eu_{0.025})₂SiO₄ or (Sr_{0.58}Ca_{0.036}Eu_{0.06})₂SiO₄.
2. (Original) The lighting apparatus of claim 1, wherein the light source is an LED.
3. (Original) The lighting apparatus of claim 2, wherein the LED comprises a nitride compound semiconductor represented by the formula In_iGa_jAl_kN, where 0 ≤ i; 0 ≤ j, 0 ≤ k, and i + j + k = 1.
4. (Original) The lighting apparatus of claim 1, wherein the light source is an organic emissive structure.
5. (Original) The lighting apparatus of claim 1, wherein the phosphor composition is coated on the surface of the light source.
6. (Original) The lighting apparatus of claim 1, further comprising an encapsulant surrounding the light source and the phosphor composition.

7. (Original) The lighting apparatus of claim 1, wherein the phosphor composition is dispersed in the encapsulant.
8. (Original) The lighting apparatus of claim 1, further comprising a reflector cup.
9. (Cancelled)
10. (Cancelled)
11. (Original) The lighting apparatus of claim 10, wherein said apparatus has a color point with ccx value of 0.5286 and a ccy value of 0.4604.
12. (Original) The lighting apparatus of claim 1, wherein said phosphor composition further comprises one or more additional phosphor.
13. (Previously Presented) The lighting apparatus of claim 12, wherein said one or more additional phosphors are selected from the group consisting of
 $(\text{Ba}, \text{Sr}, \text{Ca})_5(\text{PO}_4)_3(\text{Cl}, \text{F}, \text{Br}, \text{OH}):\text{Eu}^{2+}, \text{Mn}^{2+}, \text{Sb}^{3+};$ $(\text{Ba}, \text{Sr}, \text{Ca})\text{MgAl}_{10}\text{O}_{17}:\text{Eu}^{2+}, \text{Mn}^{2+};$
 $(\text{Ba}, \text{Sr}, \text{Ca})\text{BPO}_5:\text{Eu}^{2+}, \text{Mn}^{2+};$ $(\text{Sr}, \text{Ca})_{10}(\text{PO}_4)_6 * n\text{B}_2\text{O}_3:\text{Eu}^{2+};$ $2\text{SrO} * 0.84\text{P}_2\text{O}_5 * 0.16\text{B}_2\text{O}_3:\text{Eu}^{2+};$
 $\text{Sr}_2\text{Si}_3\text{O}_8 * 2\text{SrCl}_2:\text{Eu}^{2+};$ $\text{Ba}_3\text{MgSi}_2\text{O}_8:\text{Eu}^{2+};$ $\text{Sr}_4\text{Al}_{14}\text{O}_{25}:\text{Eu}^{2+};$ $\text{BaAl}_8\text{O}_{13}:\text{Eu}^{2+};$ $2\text{SrO} - 0.84\text{P}_2\text{O}_5 -$
 $0.16\text{B}_2\text{O}_3:\text{Eu}^{2+};$ $(\text{Ba}, \text{Sr}, \text{Ca})\text{Al}_2\text{O}_4:\text{Eu}^{2+};$ $(\text{Y}, \text{Gd}, \text{Lu}, \text{Sc}, \text{La})\text{BO}_3:\text{Ce}^{3+}, \text{Tb}^{3+};$
 $(\text{Ba}, \text{Sr}, \text{Ca})_2(\text{Mg}, \text{Zn})\text{Si}_2\text{O}_7:\text{Eu}^{2+};$ $(\text{Sr}, \text{Ca}, \text{Ba})(\text{Al}, \text{Ga}, \text{In})_2\text{S}_4:\text{Eu}^{2+};$ $(\text{Y}, \text{Gd}, \text{Tb}, \text{La}, \text{Sm}, \text{Pr},$
 $\text{Lu})_3(\text{Al}, \text{Ga})_5\text{O}_{12}:\text{Ce}^{3+};$ $(\text{Ca}, \text{Sr})_8(\text{Mg}, \text{Zn})(\text{SiO}_4)_4\text{Cl}_2:\text{Eu}^{2+}, \text{Mn}^{2+};$ $\text{Na}_2\text{Gd}_2\text{B}_2\text{O}_7:\text{Ce}^{3+}, \text{Tb}^{3+};$
 $(\text{Ba}, \text{Sr})_2(\text{Ca}, \text{Mg}, \text{Zn})\text{B}_2\text{O}_6:\text{K}, \text{Ce}, \text{Tb};$ $(\text{Sr}, \text{Ca}, \text{Ba}, \text{Mg}, \text{Zn})_2\text{P}_2\text{O}_7:\text{Eu}^{2+}, \text{Mn}^{2+};$
 $(\text{Ca}, \text{Sr}, \text{Ba}, \text{Mg})_{10}(\text{PO}_4)_6(\text{F}, \text{Cl}, \text{Br}, \text{OH}):\text{Eu}^{2+}, \text{Mn}^{2+};$ $(\text{Gd}, \text{Y}, \text{Lu}, \text{La})_2\text{O}_3:\text{Eu}^{3+}, \text{Bi}^{3+};$
 $(\text{Gd}, \text{Y}, \text{Lu}, \text{La})_2\text{O}_2\text{S}:\text{Eu}^{3+}, \text{Bi}^{3+};$ $(\text{Gd}, \text{Y}, \text{Lu}, \text{La})\text{VO}_4:\text{Eu}^{3+}, \text{Bi}^{3+};$ $(\text{Ca}, \text{Sr})\text{S}:\text{Eu}^{2+};$ $\text{SrY}_2\text{S}_4:\text{Eu}^{2+};$
 $\text{CaLa}_2\text{S}_4:\text{Ce}^{3+};$ $(\text{Ca}, \text{Sr})\text{S}:\text{Eu}^{2+};$ $3.5\text{MgO} * 0.5\text{MgF}_2 * \text{GeO}_2:\text{Mn}^{4+};$ $(\text{Ba}, \text{Sr}, \text{Ca})\text{MgP}_2\text{O}_7:\text{Eu}^{2+}, \text{Mn}^{2+};$
 $(\text{Y}, \text{Lu})_2\text{WO}_6:\text{Eu}^{3+}, \text{Mo}^{6+};$ $(\text{Ba}, \text{Sr}, \text{Ca})_x\text{Si}_y\text{N}_z:\text{Eu}^{2+}.$
14. (Currently Amended) A lighting apparatus for emitting white light comprising:
a UV light source emitting radiation having a peak emission in the UV range; and
a phosphor composition radiationally coupled to the light source, the phosphor

composition comprising $(\text{Sr}, \text{Ba}, \text{Ca})_2\text{SiO}_4:\text{Eu}$, one or more garnet phosphors having the general formula $(\text{Y}, \text{Gd}, \text{La}, \text{Lu}, \text{Tb}, \text{Pr}, \text{Sm})_3(\text{Al}, \text{Ga}, \text{In})_5\text{O}_{12}:\text{Ce}$ and a magnesium fluorogermanate phosphor, wherein said $(\text{Sr}, \text{Ba}, \text{Ca})_2\text{SiO}_4:\text{Eu}$ phosphor comprises $(\text{Sr}_{0.95}\text{Ba}_{0.025}\text{Eu}_{0.025})_2\text{SiO}_4$ or $(\text{Sr}_{0.58}\text{Ca}_{0.036}\text{Eu}_{0.06})_2\text{SiO}_4$.

15. (Original) The lighting apparatus of claim 14, wherein the light source is a semiconductor LED.

16. (Original) The lighting apparatus of claim 14, wherein the LED comprises a nitride compound semiconductor represented by the formula $\text{In}_i\text{Ga}_j\text{Al}_k\text{N}$, where $0 \leq i$; $0 \leq j$, $0 \leq k$, and $i + j + k = 1$.

17. (Original) The lighting apparatus of claim 14, wherein said light source is an organic emissive structure.

18. (Original) The lighting apparatus of claim 14, wherein the phosphor composition is coated on the surface of the light source.

19. (Original) The lighting apparatus of claim 14, further comprising an encapsulant surrounding the light source and the phosphor composition.

20. (Original) The lighting apparatus of claim 14, wherein the phosphor composition is dispersed in the encapsulant.

21. (Original) The lighting apparatus of claim 14, further comprising a reflector cup.

22. (Cancelled)

23. (Cancelled)

24. (Original) The lighting apparatus of claim 14, wherein said apparatus has a color point with ccx value of 0.5286 and a ccy value of 0.4604.

25. (Original) The lighting apparatus of claim 14, wherein said phosphor composition further comprises one or more additional phosphors.

26. (Previously Presented) The lighting apparatus of claim 21, wherein said one or more additional phosphors are selected from the group consisting of
 $(\text{Ba}, \text{Sr}, \text{Ca})_5(\text{PO}_4)_3(\text{Cl}, \text{F}, \text{Br}, \text{OH})\text{:Eu}^{2+}, \text{Mn}^{2+}, \text{Sb}^{3+}$; $(\text{Ba}, \text{Sr}, \text{Ca})\text{MgAl}_{10}\text{O}_{17}\text{:Eu}^{2+}, \text{Mn}^{2+}$;
 $(\text{Ba}, \text{Sr}, \text{Ca})\text{BPO}_5\text{:Eu}^{2+}, \text{Mn}^{2+}$; $(\text{Sr}, \text{Ca})_{10}(\text{PO}_4)_6 \cdot n\text{B}_2\text{O}_3\text{:Eu}^{2+}$; $2\text{SrO} \cdot 0.84\text{P}_2\text{O}_5 \cdot 0.16\text{B}_2\text{O}_3\text{:Eu}^{2+}$;
 $\text{Sr}_2\text{Si}_3\text{O}_8 \cdot 2\text{SrCl}_2\text{:Eu}^{2+}$; $\text{Ba}_3\text{MgSi}_2\text{O}_8\text{:Eu}^{2+}$; $\text{Sr}_4\text{Al}_{14}\text{O}_{25}\text{:Eu}^{2+}$; $\text{BaAl}_8\text{O}_{13}\text{:Eu}^{2+}$; $2\text{SrO} \cdot 0.84\text{P}_2\text{O}_5 \cdot 0.16\text{B}_2\text{O}_3\text{:Eu}^{2+}$;
 $(\text{Ba}, \text{Sr}, \text{Ca})\text{Al}_2\text{O}_4\text{:Eu}^{2+}$; $(\text{Y}, \text{Gd}, \text{Lu}, \text{Sc}, \text{La})\text{BO}_3\text{:Ce}^{3+}, \text{Tb}^{3+}$;
 $(\text{Ba}, \text{Sr}, \text{Ca})_2(\text{Mg}, \text{Zn})\text{Si}_2\text{O}_7\text{:Eu}^{2+}$; $(\text{Sr}, \text{Ca}, \text{Ba})(\text{Al}, \text{Ga}, \text{In})_2\text{S}_4\text{:Eu}^{2+}$; $(\text{Y}, \text{Gd}, \text{Tb}, \text{La}, \text{Sm}, \text{Pr}, \text{Lu})_3(\text{Al}, \text{Ga})_5\text{O}_{12}\text{:Ce}^{3+}$;
 $(\text{Ca}, \text{Sr})_8(\text{Mg}, \text{Zn})(\text{SiO}_4)_4\text{Cl}_2\text{:Eu}^{2+}, \text{Mn}^{2+}$; $\text{Na}_2\text{Gd}_2\text{B}_2\text{O}_7\text{:Ce}^{3+}, \text{Tb}^{3+}$;
 $(\text{Ba}, \text{Sr})_2(\text{Ca}, \text{Mg}, \text{Zn})\text{B}_2\text{O}_6\text{:K}, \text{Ce}, \text{Tb}$; $(\text{Sr}, \text{Ca}, \text{Ba}, \text{Mg}, \text{Zn})_2\text{P}_2\text{O}_7\text{:Eu}^{2+}, \text{Mn}^{2+}$;
 $(\text{Ca}, \text{Sr}, \text{Ba}, \text{Mg})_{10}(\text{PO}_4)_6(\text{F}, \text{Cl}, \text{Br}, \text{OH})\text{:Eu}^{2+}, \text{Mn}^{2+}$; $(\text{Gd}, \text{Y}, \text{Lu}, \text{La})_2\text{O}_3\text{:Eu}^{3+}, \text{Bi}^{3+}$;
 $(\text{Gd}, \text{Y}, \text{Lu}, \text{La})_2\text{O}_2\text{S}\text{:Eu}^{3+}, \text{Bi}^{3+}$; $(\text{Gd}, \text{Y}, \text{Lu}, \text{La})\text{VO}_4\text{:Eu}^{3+}, \text{Bi}^{3+}$; $(\text{Ca}, \text{Sr})\text{S}\text{:Eu}^{2+}$; $\text{SrY}_2\text{S}_4\text{:Eu}^{2+}$;
 $\text{CaLa}_2\text{S}_4\text{:Ce}^{3+}$; $(\text{Ca}, \text{Sr})\text{S}\text{:Eu}^{2+}$; $3.5\text{MgO} \cdot 0.5\text{MgF}_2 \cdot \text{GeO}_2\text{:Mn}^{4+}$; $(\text{Ba}, \text{Sr}, \text{Ca})\text{MgP}_2\text{O}_7\text{:Eu}^{2+}, \text{Mn}^{2+}$;
 $(\text{Y}, \text{Lu})_2\text{WO}_6\text{:Eu}^{3+}, \text{Mo}^{6+}$; $(\text{Ba}, \text{Sr}, \text{Ca})_x\text{Si}_y\text{N}_z\text{:Eu}^{2+}$.

27. (Previously Presented) A lighting apparatus for emitting white light comprising:
a semiconductor light source emitting radiation having a peak emission in the UV range;
and

a phosphor composition radiationally coupled to the light source, the phosphor composition comprising $(\text{Ba}, \text{Sr}, \text{Ca})\text{SiO}_4\text{:Eu}$, and one or more additional phosphors, wherein said $(\text{Ba}, \text{Sr}, \text{Ca})\text{SiO}_4\text{:Eu}$ phosphor comprises $(\text{Sr}_{0.95}\text{Ba}_{0.025}\text{Eu}_{0.025})_2\text{SiO}_4$ or $(\text{Sr}_{0.58}\text{Ca}_{0.036}\text{Eu}_{0.06})_2\text{SiO}_4$.

28. (Original) The lighting apparatus of claim 27, wherein the light source is a semiconductor LED.

29. (Original) The lighting apparatus of claim 27, wherein the LED comprises a nitride compound semiconductor represented by the formula $\text{In}_i\text{Ga}_j\text{Al}_k\text{N}$, where $0 \leq i$; $0 \leq j$, $0 \leq k$, and $i + j + k = 1$.

30. (Original) The lighting apparatus of claim 27, wherein said light source is an organic emissive structure.
31. (Original) The lighting apparatus of claim 27, wherein the phosphor composition is coated on the surface of the light source.
32. (Original) The lighting apparatus of claim 27, further comprising an encapsulant surrounding the light source and the phosphor composition.
33. (Original) The lighting apparatus of claim 27, wherein the phosphor composition is dispersed in the encapsulant.
34. (Original) The lighting apparatus of claim 27, further comprising a reflector cup.
35. (Cancelled)
36. (Cancelled)
37. (Previously Presented) The lighting apparatus of claim 27, wherein said apparatus has a color point with a ccx value of 0.5286 and a ccy value of 0.4604.
38. Canceled
39. (Previously Presented) The lighting apparatus of claim 32, wherein said one or more additional phosphors are selected from the group consisting of
 $(\text{Ba}, \text{Sr}, \text{Ca})_5(\text{PO}_4)_3(\text{Cl}, \text{F}, \text{Br}, \text{OH})\text{:Eu}^{2+}, \text{Mn}^{2+}, \text{Sb}^{3+}$; $(\text{Ba}, \text{Sr}, \text{Ca})\text{MgAl}_{10}\text{O}_{17}\text{:Eu}^{2+}, \text{Mn}^{2+}$;
 $(\text{Ba}, \text{Sr}, \text{Ca})\text{BPO}_5\text{:Eu}^{2+}, \text{Mn}^{2+}$; $(\text{Sr}, \text{Ca})_{10}(\text{PO}_4)_6\text{:nB}_2\text{O}_3\text{:Eu}^{2+}$; $2\text{SrO} \cdot 0.84\text{P}_2\text{O}_5 \cdot 0.16\text{B}_2\text{O}_3\text{:Eu}^{2+}$;
 $\text{Sr}_2\text{Si}_3\text{O}_8 \cdot 2\text{SrCl}_2\text{:Eu}^{2+}$; $\text{Ba}_3\text{MgSi}_2\text{O}_8\text{:Eu}^{2+}$; $\text{Sr}_4\text{Al}_{14}\text{O}_{25}\text{:Eu}^{2+}$; $\text{BaAl}_8\text{O}_{13}\text{:Eu}^{2+}$; $2\text{SrO} \cdot 0.84\text{P}_2\text{O}_5 \cdot 0.16\text{B}_2\text{O}_3\text{:Eu}^{2+}$;
 $(\text{Ba}, \text{Sr}, \text{Ca})\text{Al}_2\text{O}_4\text{:Eu}^{2+}$; $(\text{Y}, \text{Gd}, \text{Lu}, \text{Sc}, \text{La})\text{BO}_3\text{:Ce}^{3+}, \text{Tb}^{3+}$;
 $(\text{Ba}, \text{Sr}, \text{Ca})_2(\text{Mg}, \text{Zn})\text{Si}_2\text{O}_7\text{:Eu}^{2+}$; $(\text{Sr}, \text{Ca}, \text{Ba})(\text{Al}, \text{Ga}, \text{In})_2\text{S}_4\text{:Eu}^{2+}$; $(\text{Y}, \text{Gd}, \text{Tb}, \text{La}, \text{Sm}, \text{Pr}, \text{Lu})_3(\text{Al}, \text{Ga})_5\text{O}_{12}\text{:Ce}^{3+}$;
 $(\text{Ca}, \text{Sr})_8(\text{Mg}, \text{Zn})(\text{SiO}_4)_4\text{Cl}_2\text{:Eu}^{2+}, \text{Mn}^{2+}$; $\text{Na}_2\text{Gd}_2\text{B}_2\text{O}_7\text{:Ce}^{3+}, \text{Tb}^{3+}$;

$(\text{Ba}, \text{Sr})_2(\text{Ca}, \text{Mg}, \text{Zn})\text{B}_2\text{O}_6:\text{K}, \text{Ce}, \text{Tb};$ $(\text{Sr}, \text{Ca}, \text{Ba}, \text{Mg}, \text{Zn})_2\text{P}_2\text{O}_7:\text{Eu}^{2+}, \text{Mn}^{2+};$
 $(\text{Ca}, \text{Sr}, \text{Ba}, \text{Mg})_{10}(\text{PO}_4)_6(\text{F}, \text{Cl}, \text{Br}, \text{OH}):$ $\text{Eu}^{2+}, \text{Mn}^{2+};$ $(\text{Gd}, \text{Y}, \text{Lu}, \text{La})_2\text{O}_3:\text{Eu}^{3+}, \text{Bi}^{3+};$
 $(\text{Gd}, \text{Y}, \text{Lu}, \text{La})_2\text{O}_2\text{S}:\text{Eu}^{3+}, \text{Bi}^{3+};$ $(\text{Gd}, \text{Y}, \text{Lu}, \text{La})\text{VO}_4:\text{Eu}^{3+}, \text{Bi}^{3+};$ $(\text{Ca}, \text{Sr})\text{S}:\text{Eu}^{2+};$ $\text{SrY}_2\text{S}_4:\text{Eu}^{2+};$
 $\text{CaLa}_2\text{S}_4:\text{Ce}^{3+};$ $(\text{Ca}, \text{Sr})\text{S}:\text{Eu}^{2+};$ $3.5\text{MgO} \cdot 0.5\text{MgF}_2 \cdot \text{GeO}_2:\text{Mn}^{4+};$ $(\text{Ba}, \text{Sr}, \text{Ca})\text{MgP}_2\text{O}_7:\text{Eu}^{2+}, \text{Mn}^{2+};$
 $(\text{Y}, \text{Lu})_2\text{WO}_6:\text{Eu}^{3+}, \text{Mo}^{6+};$ $(\text{Ba}, \text{Sr}, \text{Ca})_x\text{Si}_y\text{N}_z:\text{Eu}^{2+}.$

40. (Currently Amended) A phosphor blend including $(\text{Sr}, \text{Ba}, \text{Ca})_2\text{SiO}_4:\text{Eu}$ and at least one of $(\text{Sr}, \text{Mg}, \text{Ca}, \text{Ba}, \text{Zn})_2\text{P}_2\text{O}_7:\text{Eu}, \text{Mn};$ $(\text{Ca}, \text{Sr}, \text{Ba}, \text{Mg})_5(\text{PO}_4)_3(\text{Cl}, \text{F}, \text{OH}):\text{Eu}, \text{Mn};$ and $(\text{Sr}, \text{Ba}, \text{Ca})\text{MgAl}_{10}\text{O}_{17}:\text{Eu}, \text{Mn},$ wherein said $(\text{Sr}, \text{Ba}, \text{Ca})_2\text{SiO}_4:\text{Eu}$ phosphor comprises $(\text{Sr}_{0.95}\text{Ba}_{0.025}\text{Eu}_{0.025})_2\text{SiO}_4$ or $(\text{Sr}_{0.58}\text{Ca}_{0.036}\text{Eu}_{0.06})_2\text{SiO}_4.$

41. (Cancelled)

42. (Cancelled)

43. (Previously Presented) The phosphor blend of claim 40, wherein said phosphor blend is capable of absorbing the radiation emitted by a light source having a peak emission in the UV range and emitting radiation that, when combined with said radiation from said light source, produces white light.

44. (Cancelled)

45. (Previously Presented) The lighting apparatus of claim 1, wherein said semiconductor light source has a peak emission at about 405 nm.

46. (Currently Amended) A lighting apparatus for emitting white light comprising:

a semiconductor light source emitting radiation having a peak emission in the UV;
 and

a phosphor composition radiationally coupled to the light source, the phosphor composition comprising $(\text{Sr}, \text{Ba}, \text{Ca})_2\text{SiO}_4:\text{Eu},$ and at least one phosphor selected from the group consisting of $(\text{Sr}, \text{Mg}, \text{Ca}, \text{Ba}, \text{Zn})_2\text{P}_2\text{O}_7:\text{Eu}, \text{Mn};$ $(\text{Ca}, \text{Sr}, \text{Ba}, \text{Mg})_5(\text{PO}_4)_3(\text{Cl}, \text{F}, \text{OH}):\text{Eu}, \text{Mn};$ and

(Sr,Ba,Ca)MgAl₁₀O₁₇:Eu,Mn, wherein said (Sr,Ba,Ca)₂SiO₄:Eu phosphor comprises (Sr_{0.95}Ba_{0.025}Eu_{0.025})₂SiO₄ or (Sr_{0.58}Ca_{0.036}Eu_{0.06})₂SiO₄.